

Amendments to the Claims:

This listing of the claims will replace all prior versions, and listing, of the claims in the application:

Listing of the claims:

1. – 75. (Canceled)

76. (Currently Amended) A method for profiling gene expression in a human test subject, the method comprising:

a) measuring a level of expression in a blood sample of said test subject of each ~~marker-gene~~ of a ~~marker-set~~ of genes consisting of heat shock protein 90kDa alpha (cytosolic), class A member 1 (HSPCA/HSP90AA1)₁; inhibitor of kappa light polypeptide gene enhancer in B-cells, kinase complex-associated protein (IKBKAP)₁; interleukin 13 receptor, alpha 1 (IL13RA1)₁; laminin, gamma 1 (LAMC1)₁; v-maf musculoaponeurotic fibrosarcoma oncogene homolog B (MAFB)₁; and platelet factor 4 (PF4)₁, thereby obtaining a sample dataset; and

b) applying a classifier to said sample dataset to thereby classify said test subject into a class representing human subjects having mild osteoarthritis or a class representing human subjects not having osteoarthritis, wherein said classifier is able to discriminate between human subjects having mild osteoarthritis and human subjects not having osteoarthritis, and wherein said classifier is derived from data representing a level of expression of each ~~marker-gene~~ of said ~~marker-set~~ of genes in blood samples of human subjects having mild osteoarthritis and in blood samples of human subjects not having osteoarthritis,

thereby profiling gene expression in a human test subject.

77. – 81. (Canceled)

82. (Previously Presented) The method of claim 76, wherein said classifier is based on a multiple regression equation.

83. (Currently Amended) The method of claim 76, wherein said classifier ~~is identified as classifier 100000252~~ has a format:

SCORE = -1.839 + 0.8*HSP90AA1 - 1.5525*IKBKAP + 1.10184*IL13RA1 + 0.78923*LAMC1 - 1.3974*MAFB + 1.0602*PF4, where

SCORE, if positive, classifies said test subject into said class representing human subjects having mild osteoarthritis;

SCORE, if negative, classifies said test subject into said class representing human subjects not having osteoarthritis;

HSP90AA1 represents said level of expression of heat shock protein 90kDa alpha (cytosolic), class A member 1 (HSP90AA1) in said sample of said test subject;

IKBKAP represents said level of expression of inhibitor of kappa light polypeptide gene enhancer in B-cells, kinase complex-associated protein (IKBKAP) in said sample of said test subject;

IL13RA1 represents said level of expression of interleukin 13 receptor, alpha 1 (IL13RA1) in said sample of said test subject;

LAMC1 represents said level of expression of laminin, gamma 1 (LAMC1) in said sample of said test subject;

MAFB represents said level of expression of v-maf musculoaponeurotic fibrosarcoma oncogene homolog B (MAFB) in said sample of said test subject; and

PF4 represents said level of expression of platelet factor 4 (PF4) in said sample of said test subject.

84. (Currently Amended) The method of claim 76, wherein said applying said classifier to said sample dataset comprises using a computer programmed to apply said classifier to a dataset representing a level of expression of each marker-gene of said marker set of genes in a blood sample of a human individual to thereby classify said human individual into said class representing human subjects having mild osteoarthritis or said class representing human subjects not having osteoarthritis.

85. (Previously Presented) The method of claim 84, wherein said classifier is based on a multiple regression equation.

86. (Currently Amended) The method of claim 84, wherein said classifier is identified as classifier-100000252 has a format:

SCORE = -1.839 + 0.8*HSP90AA1 - 1.5525*IKBKAP + 1.10184*IL13RA1 + 0.78923*LAMC1 - 1.3974*MAFB + 1.0602*PF4, where

SCORE, if positive, classifies said test subject into said class representing human subjects having mild osteoarthritis;

SCORE, if negative, classifies said test subject into said class representing human subjects not having osteoarthritis;

HSP90AA1 represents said level of expression of heat shock protein 90kDa alpha (cytosolic), class A member 1 (HSP90AA1) in said sample of said test subject;

IKBKAP represents said level of expression of inhibitor of kappa light polypeptide gene enhancer in B-cells, kinase complex-associated protein (IKBKAP) in said sample of said test subject;

IL13RA1 represents said level of expression of interleukin 13 receptor, alpha 1 (IL13RA1) in said sample of said test subject;

LAMC1 represents said level of expression of laminin, gamma 1 (LAMC1) in said sample of said test subject;

MAFB represents said level of expression of v-maf musculoaponeurotic fibrosarcoma oncogene homolog B (MAFB) in said sample of said test subject; and

PF4 represents said level of expression of platelet factor 4 (PF4) in said sample of said test subject.

87. (Currently Amended) A method for profiling gene expression in a human test subject, the method comprising:

a) obtaining a sample dataset representing a level of expression in a blood sample of said test subject of each ~~marker gene~~ of a ~~marker set~~ of genes consisting of heat shock protein 90kDa alpha (cytosolic), class A member 1 (HSPCA|HSP90AA1); inhibitor of kappa light polypeptide gene enhancer in B-cells, kinase complex-associated protein (IKBKAP); interleukin 13 receptor, alpha 1 (IL13RA1); laminin, gamma 1 (LAMC1); v-maf musculoaponeurotic fibrosarcoma oncogene homolog B (MAFB); and platelet factor 4 (PF4); and

b) using a computer, applying a classifier to said sample dataset to thereby classify said test subject into a class representing human subjects having mild osteoarthritis or a class representing human subjects not having osteoarthritis, wherein said classifier is able to discriminate between human subjects having mild osteoarthritis and human subjects not having osteoarthritis, wherein said classifier is derived from data representing a level of expression of each marker of said marker set in blood samples of human subjects having mild osteoarthritis and in blood samples of human subjects not having osteoarthritis, and wherein said computer is programmed to apply said classifier to a dataset representing a level of

expression of each marker-gene of said marker-set of genes in a blood sample of a human individual to thereby classify said test individual into said class representing human subjects having mild osteoarthritis or said class representing human subjects not having osteoarthritis, thereby profiling gene expression in a human test subject.

88. (Previously Presented) The method of claim 87, wherein said classifier is based on a multiple regression equation.

89. (Currently Amended) The method of claim 87, wherein said classifier ~~is identified~~ as classifier 100000252 has a format:

SCORE = -1.839 + 0.8*HSP90AA1 - 1.5525*IKBKAP + 1.10184*IL13RA1 + 0.78923*LAMC1 - 1.3974*MAFB + 1.0602*PF4, where

SCORE, if positive, classifies said test subject into said class representing human subjects having mild osteoarthritis;

SCORE, if negative, classifies said test subject into said class representing human subjects not having osteoarthritis;

HSP90AA1 represents said level of expression of heat shock protein 90kDa alpha (cytosolic), class A member 1 (HSP90AA1) in said sample of said test subject;

IKBKAP represents said level of expression of inhibitor of kappa light polypeptide gene enhancer in B-cells, kinase complex-associated protein (IKBKAP) in said sample of said test subject;

IL13RA1 represents said level of expression of interleukin 13 receptor, alpha 1 (IL13RA1) in said sample of said test subject;

LAMC1 represents said level of expression of laminin, gamma 1 (LAMC1) in said sample of said test subject;

MAFB represents said level of expression of v-maf musculoaponeurotic fibrosarcoma oncogene homolog B (MAFB) in said sample of said test subject; and

PF4 represents said level of expression of platelet factor 4 (PF4) in said sample of said test subject.

90. (Currently Amended) The method of claim 87, wherein said obtaining said sample dataset comprises measuring said level of expression of each marker-gene of a said marker-set of genes in said blood sample of said test subject.

91. (Previously Presented) The method of claim 90, wherein said classifier is based on a multiple regression equation.

92. (Currently Amended) The method of claim 90, wherein said classifier is identified as classifier 100000252 has a format:

$$\text{SCORE} = -1.839 + 0.8 * \text{HSP90AA1} - 1.5525 * \text{IKBKAP} + 1.10184 * \text{IL13RA1} + 0.78923 * \text{LAMC1} - 1.3974 * \text{MAFB} + 1.0602 * \text{PF4}$$
, where

SCORE, if positive, classifies said test subject into said class representing human subjects having mild osteoarthritis;

SCORE, if negative, classifies said test subject into said class representing human subjects not having osteoarthritis;

HSP90AA1 represents said level of expression of heat shock protein 90kDa alpha (cytosolic), class A member 1 (HSP90AA1) in said sample of said test subject;

IKBKAP represents said level of expression of inhibitor of kappa light polypeptide gene enhancer in B-cells, kinase complex-associated protein (IKBKAP) in said sample of said test subject;

IL13RA1 represents said level of expression of interleukin 13 receptor, alpha 1 (IL13RA1) in said sample of said test subject;

LAMC1 represents said level of expression of laminin, gamma 1 (LAMC1) in said sample of said test subject;

MAFB represents said level of expression of v-maf musculoaponeurotic fibrosarcoma oncogene homolog B (MAFB) in said sample of said test subject; and

PF4 represents said level of expression of platelet factor 4 (PF4) in said sample of said test subject.

93. (Currently Amended) A method for profiling gene expression in a human test subject, the method comprising:

using a computer, applying a classifier to a sample dataset representing a level of expression in a blood sample of said test subject of each marker gene of a marker-set of genes consisting of heat shock protein 90kDa alpha (cytosolic), class A member 1 (HSP90AA1); inhibitor of kappa light polypeptide gene enhancer in B-cells, kinase complex-associated protein (IKBKAP); interleukin 13 receptor, alpha 1 (IL13RA1); laminin, gamma 1 (LAMC1); v-maf musculoaponeurotic fibrosarcoma oncogene homolog B (MAFB); and platelet factor 4 (PF4), to thereby classify said test subject into a class

representing human subjects having mild osteoarthritis or a class representing human subjects not having osteoarthritis,

wherein said classifier is able to discriminate between human subjects having mild osteoarthritis and human subjects not having osteoarthritis,

wherein said classifier is derived from data representing a level of expression of each marker of said marker set in blood samples of human subjects having mild osteoarthritis and in blood samples of human subjects not having osteoarthritis, and

wherein said computer is programmed to apply said classifier to a dataset representing a level of expression of each ~~marker-gene~~ of said ~~marker-set of genes~~ in a blood sample of a human individual to thereby classify said human individual into said class representing human subjects having mild osteoarthritis or said class representing human subjects not having osteoarthritis,

thereby profiling gene expression in a human test subject.

94. (Previously Presented) The method of claim 93, wherein said classifier is based on a multiple regression equation.

95. (Currently Amended) The method of claim 93, wherein said classifier ~~is identified as classifier 100000252~~ has a format:

$SCORE = -1.839 + 0.8 * HSP90AA1 - 1.5525 * IKBKAP + 1.10184 * IL13RA1 + 0.78923 * LAMC1 - 1.3974 * MAFB + 1.0602 * PF4$, where

SCORE, if positive, classifies said test subject into said class representing human subjects having mild osteoarthritis;

SCORE, if negative, classifies said test subject into said class representing human subjects not having osteoarthritis;

HSP90AA1 represents said level of expression of heat shock protein 90kDa alpha (cytosolic), class A member 1 (HSP90AA1) in said sample of said test subject;

IKBKAP represents said level of expression of inhibitor of kappa light polypeptide gene enhancer in B-cells, kinase complex-associated protein (IKBKAP) in said sample of said test subject;

IL13RA1 represents said level of expression of interleukin 13 receptor, alpha 1 (IL13RA1) in said sample of said test subject;

LAMC1 represents said level of expression of laminin, gamma 1 (LAMC1) in said sample of said test subject;

MAFB represents said level of expression of v-maf musculoaponeurotic fibrosarcoma oncogene homolog B (MAFB) in said sample of said test subject; and

PF4 represents said level of expression of platelet factor 4 (PF4) in said sample of said test subject.

96. (Currently Amended) The method of claim 93, further comprising obtaining said sample dataset by measuring said level of expression of each marker gene of said marker set of genes in said blood sample of said test subject, prior to applying said classifier to said sample dataset.

97. (Previously Presented) The method of claim 96, wherein said classifier is based on a multiple regression equation.

98. (Currently Amended) The method of claim 96, wherein said classifier ~~is identified as classifier 100000252~~ has a format:

$SCORE = -1.839 + 0.8 * HSP90AA1 - 1.5525 * IKBKAP + 1.10184 * IL13RA1 + 0.78923 * LAMC1 - 1.3974 * MAFB + 1.0602 * PF4$, where

SCORE, if positive, classifies said test subject into said class representing human subjects having mild osteoarthritis;

SCORE, if negative, classifies said test subject into said class representing human subjects not having osteoarthritis;

HSP90AA1 represents said level of expression of heat shock protein 90kDa alpha (cytosolic), class A member 1 (HSP90AA1) in said sample of said test subject;

IKBKAP represents said level of expression of inhibitor of kappa light polypeptide gene enhancer in B-cells, kinase complex-associated protein (IKBKAP) in said sample of said test subject;

IL13RA1 represents said level of expression of interleukin 13 receptor, alpha 1 (IL13RA1) in said sample of said test subject;

LAMC1 represents said level of expression of laminin, gamma 1 (LAMC1) in said sample of said test subject;

MAFB represents said level of expression of v-maf musculoaponeurotic fibrosarcoma oncogene homolog B (MAFB) in said sample of said test subject; and

PF4 represents said level of expression of platelet factor 4 (PF4) in said sample of said test subject.